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Are we there yet? Resilience training as a catalyst for student creativity

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Abstract
This paper explores the integration of resilience training into educational settings, through the lens of behavioral insights. Namely, while resilience is often associated with traits like survival and long-term development, this study highlights its alignment with creativity – a dynamic and adaptable quality that embodies both a higher level of program attractiveness and a shift from self-reported to experimental measures. To build this connection, the paper provides a recent overview (2021–2024) of resilience interventions and creativity experiments. It examines their use, impact, and limitations, as well as methodologies for task design and assessment. Based on this analysis, we propose a foundational framework for a resilience-creativity intervention program tailored for students. The program is designed to enhance resilience while fostering creativity, using engaging and interactive activities to promote bonding and support, particularly for first-year students. Finally, we discuss implementation strategies, pilot testing, and iterative improvements, emphasizing the potential of this dual-focus intervention to address critical challenges in higher education.

JEL Classification: D90, I20

Keywords
resilience — creativity — experimental task — student

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Introduction

Higher education institutions across the globe face increasing challenges such as academic underachievement, student dropout, and peer exclusion (Valencia Quecano et al., 2024; Altbach et al., 2019; Yeager & Dweck, 2012). The causes are generically identified within various academic, personal and social factors that affect students' mindsets (Al-Tameemi et al., 2023). Further, one's mindset can impact academic outcomes and decisions (Macnamara & Burgoyne, 2023; Canning and Limeri, 2023), which universities should aim to manage and mitigate in case of negative results (Molden & Dweck, 2006).

Resilience training is one of the comprehensive approaches to address this issue, balancing not only the management of immediate negative emotions but also the long-term objective of fostering resilience and growth (Krovetz, 2007). While effort, struggle, or stressful situations are uncomfortable, they are also necessary for developing coping mechanisms and adaptive functioning (Dolbier et al., 2010). By learning to navigate and overcome difficulties, students can develop the psychological tools necessary to handle future challenges with greater confidence and flexibility. This approach aligns with findings that highlight the importance of adversity in fostering resilience, emotional regulation, and problem-solving skills (Tugade & Fredrickson, 2007; Polizzi & Lynn, 2021). Thus, negative perception and psychological distress states can positively signal healthy growth in young adults (Dolbier et al., 2010). By integrating these principles into educational settings, universities increase their prospects to better prepare students to thrive both academically and personally.

In this vein, this paper considers how such integration can take place by considering some of the behavioral insights promoted by successful behavior change strategies. Namely, most guiding frameworks suggest that making interventions more easy, attractive, social and timely (e.g., EAST) increase their chances of succes. While resilience tends to have the rather opposing attributes (e.g., survival, crisis, complexity, long-term development), thus making the change process less effective, we have identified a potential significant link between resilience and creativity, where creativity embodies to a larger extend the EAST characteristics. If students can be more creative in dealing with their intellectual ability as something that can be developed over time with effort, good strategies, and help from others, they will be more resilient when they encounter the rigorous learning opportunities presented to them (Yeager & Dweck, 2012).

To that purpose, the paper provides a concise and recent (for the period 2021-2024) overview of (i) resilience interventions for students, emphasizing their use, impact, and limitations; and (ii) creativity experiments, emphasizing tasks and assesment (including both original task and various adaptations). The outcome of this critical analysis of the two streams of literature is a contribution to the definition of the coordinates for a realistic foundation of a resilience-creativity

Table 1. Resilience tasks with task instructions

Source	Task	Task instructions
Interventions specific to cognitive behavioral therapy (CBT)		
Fletcher et al. (2023)	Narrative perspective-shifting - Creative Friend Card	Students create cards for a friend struggling with a university situation. They are encouraged to empathize, imagine the friend's perspective, and decide on appropriate support, advice, and encouragement. The exercises foster empathy and provide a broader context for their situation.
Fletcher et al. (2023)	Narrative perspective-shifting - Two-Act Problem	The exercise proposes two different acts. In the first act, students are asked to explore a situation from one perspective. In the second act, students are challenged to explore the situation from a different perspective, even the opposite of the first view. The exercise motivates flexibility in thinking and adaptability and underlines the complexity of most situations.
Fletcher et al. (2023)	Narrative perspective-shifting - Team Choose-Your-Own Adventure	In this team-based exercise, students create a narrative with decision points on which team members should agree on a common path. This exercise encourages teamwork, creativity, and mental flexibility in weighing different perspectives.
Fletcher et al. (2023)	Narrative perspective-shifting - Narrative Multiple Choice	It requires students to choose from multiple potential endings to a story. They are then asked to justify their choice and discuss how the characters in the story might feel. This exercise encourages empathy, forcing others to understand someone else's perspective and the consequences.
Fletcher et al. (2023)	Narrative perspective-shifting - Create my Future	Students are asked to imagine their future from multiple perspectives. They might see themselves on different paths, careers, with different lifestyles, in different types of relationships. They then reflect on the relevant factors leading to these outcomes. The exercise encourages students to explore diverse possibilities, have flexibility concerning their life paths, and, most importantly, a sense of resilience and agency.
Lohner and Aprea (2021)	Resilience Journal - Attention Version	Participants complete a 5-day journal with a daily reflection task: "Every day, we face many challenges, both small and big, in private and academic contexts. Think back over the past day and enter three challenges that you encountered in the field below. For each challenge, write down what specifically was challenging for you."
Lohner and Aprea (2021)	Resilience Journal - Mastery Version	Participants complete a 5-day journal with a daily reflection task: "Every day, we master many challenges, both small and big, in private and academic contexts. Think back over the past day and enter three challenges that you mastered today in the field below. For each challenge, write down how you mastered it."
Interventions based on mindfulness techniques		
Baumgartner and Schneider (2023)	Mindfulness-Based Stress Reduction (MBSR)	Face-to-face, group-based course adaptation for students based on the traditional MBSR protocol. Students take part in a 7-week training, and one session takes 90 minutes. Training includes meditation, reflection, and interactive tasks. Students are asked to meditate for 20 minutes daily at home. Participants complete daily meditation logs to monitor their practice.
Galante et al. (2021)	Mindfulness Skills for Students (MSS)	Face-to-face, group-based course adaptation for students, based on the course book 'Mindfulness: A Practical Guide to Finding Peace in a Frantic World'. Up to 30 students take part in an 8-week training, and the university organizes parallel courses delivered by certified mindfulness guides. One session takes 75-90 minutes. Training includes meditation, reflection, and interactive tasks. Students are asked to meditate daily at home, starting with 8-minute sessions and building up to 15-25 minutes. Other practices, such as mindful eating or mindful walking, are encouraged.
Mixed interventions		
Steinhardt and Dolbier (2008)	Transforming Lives Through Resilience Education (TLRE)	The curriculum consists of 4 modules approaching stress and resilience, accountability and taking responsibility, empowering interpretation, and creating meaningful social connections. The modules propose lectures, puzzles, writing, and reading assignments. The training also includes inspirational stories, and all materials are available online: https://sites.edb.utexas.edu/resilienceeducation/

Source	Task	Task instructions
Falon et al. (2021)	Self-Reflection Resilience Training (SRT)	Self-reflection and behavioral strategies. The training includes diverse techniques such as journaling, group discussions, or stress awareness through meditation. Participants are encouraged to identify cognitive and behavioral patterns and to work on building resilience. It is usually employed in exceptionally stressful contexts, such as military training and the workforce. The SRT curricula vary by context, and access requires contacting the hosting organizations.
Alvord et al. (2014)	Resilience Builder Program (RBP)	Based on or adapted from "Resilience Builder Program for Children and Adolescents: Enhancing Social Competence and Self-Regulation". It consists of 30 sessions in two parts. The sessions include diverse skills training such as behavioral rehearsals and role-play, interactive sessions, relaxation, and self-regularization. The training approaches assertiveness, stress management, resilience in friendships, optimistic thinking, and emotional regulation.
Robinson et al. (2021)	Resilience Enhancement Programme for Students (REP-S)	Six workshop-based lessons on resilience with online adaptations. A lesson consists of six 45-minute sessions with breaks. Students receive emails with homework and reminders. It includes three levels: cognitive resilience, social resilience, and psychophysiological resilience. Academic publications such as "Digital Innovations for Mental Health Support" by Prescott (2021) provide more details on the themes, subthemes, and tasks.

intervention program for students. We discuss the choice of a specific resilience intervention typology, an associated impact measurement methodology, and a way to engage the students beyond the training as an opportunity for a fun and bonding activity to meet and greet first-year students. We argue that these objectives can be met with a design that considers both resilience and creativity, along with pilot testing and gradual improvments based on multiple iterations.

A brief review of resilience interventions for students

Our search protocol used the following keywords: "resilience intervention" AND "university". We considered the post-pandemic period, limiting the search only after 2021 (included), and we have also added in the search string the empirical dimensions through the keyword "RCT", which stands for "Randomized Controlled Trial".

Resilience interventions usually fall into one of these three categories (Joyce et al., 2018): (1) interventions specific to cognitive behavioral therapy (CBT), (2) interventions based on mindfulness techniques, and (3) mixed interventions with both practices. Each category employs specific resilience tasks, centered around the core element of the intervention. We summarize these tasks, together with task instructions, in Table 1.

For instance, the most common exercises under the CBT umbrella are narrative perspective-shifting tasks, useful to enhance problem-solving skills by engaging narrative creativity and two natural cognitive skills: causal thinking (why) and counterfactual thinking (what-if) (Fletcher et al., 2023) (e.g., "Creative Friend Card", "Two-Act Problem", "Team Choose-Your-Own-Adventure", "Narrative Multiple Choice", "Create my Future"). Journal interventions are another important dimension, focusing less on imagination and triggering more self-awarness (Lohner and Aprea, 2021) (e.g., "Attention Version" and "Mastery Version" of a Resilience Journal).

Within the mindfulness-based category, we have similarly identified interventions composed of various techniques (e.g., attention focus, calming the mind, guided meditation, yoga, body scan meditation, guided discussions) targeted at cultivating non-judgmental awareness and addressing challenges without becoming fixated on frustration: "Mindfulness Skills for Students" (MSS; Galante et al., 2021; Galante et al., 2018), "Mindfulness-Based Stress Reduction" (MBSR; Baumgartner & Schneider, 2023).

Not last, there are several mixed intervention worthy to examine: Transforming Lives Through Resilience Education (TLRE; Steinhardt & Dolbier, 2008), Self-Reflection Resilience Training (SRT; Falon et al., 2021), Resilience Builder Program (RBP; Alvord et al., 2014), and Resilience Enhancement Programme for Students (REP-S; Robinson et al., 2021). In these cases, resilience is fostered in building healthy social relations, identifying and managing stress, articulating one's own story, or being inspired by others' stories.

A discussion on the nature and efficacy of resilience interventions

The resilience interventions' efficacy are usually measured immediately after the training and through a follow-up assessment (e.g., 1-year follow-up) to grasp short-term and long-term effects (Chmitorz et al., 2018; Ang et al., 2022).

The common behavioral outcomes of interest refer to the perceived effects on academic status and performance (e.g., "To what extent are you considering leaving your course?", "To what extent do you have problems affecting your study?"; Galante et al., 2018), self-reported workload management (Ang et al., 2022) and academic motivation (Rich et al., 2023). A few studies used behavioral measurements such as aca-

demic persistence, enrollment, and grade point average (GPA; Baumgartner & Schneider, 2023), while performance and productivity indicators are also examined in organizations outside academia (Jennings et al., 2023; Robertson et al., 2015).

Beyond behaviors, there is a larger range of attitudinal and perceptual states that are being analyzed, also by the use of self-reported measured: (i) stress-related growth: taking new opportunities, personal strength, supporting and being supported by others, spiritual change, well-being, life satisfaction, gratitude, or social competency (Dolbier et al., 2010; Galante et al., 2018; Ang et al., 2022; Lohner & Aprea, 2021), (ii) dispositional and dynamic resilience (Steinhardt & Dolbier, 2008; Lohner & Aprea, 2021; Ang et al., 2022). Indirectly, other studies considered outcomes related to coping strategies as responses to stressors (Steinhardt & Dolbier, 2008; Baumgartner & Schneider, 2023), symptomatology (depressive symptoms, negative affect, perceived stress, symptoms of illness, self-reported psychological distress; Steinhardt & Dolbier, 2008; Galante et al., 2018; Ang et al., 2022; Robinson et al., 2021) and (iii) protective factors (i.e., optimism, positive affect, self-esteem, self-leadership; Steinhardt & Dolbier, 2008).

The limitation of self-reported measures is widely acknowledged, along with the mention of future directions for including other types of measurements to get a better understanding of the real impact of resilience programs. In line with this suggestion, due to the enhancement of cognitive and emotional skills compared to beneficial enthusiasm (Dolbier et al., 2010; Robinson et al., 2021), we propose creativity as a potential outcome of interest, and experimental tasks as a more suitable measurement.

A next step: connecting resilience and creativity

Creativity is already traced when discussing the implications of resilience, in areas like the development of novelty and flexibility of thinking, respectively in relation to self-efficacy (Fletcher et al., 2023). A more flexible thinking orientation helps the brain solve complex problems, and observing this effect makes students more confident about adult life (Fletcher et al., 2023).

This is something explored both by the narrative perspective-shifting and journaling techniques to CBT (e.g., imagination fuels the generation of ideas, multiple perspectives enrich the quality and diversity of those ideas, and journaling consolidates and refines them into actionable insight), and by mindfulness techniques (e.g., training the brain to be rather an observer of thoughts than to identify with the thoughts, is shown to make people more open to novelty, more attentive to details, as well as more aware of different perspectives and more open to different thinking styles; Vidal-Meliá et al., 2022).

Similarly, the practices encountered in the mixed intervention resilience programs (e.g., TLRE, SRT, RBP, REP-S in Table 1) propose to a large degree elements like solving puzzles, participating in community-engaging activities, free discussions, role-playing, group readings, and expressive writing. All practices, independent of the inspiration source (psychology, therapy, mindfulness, literature), encourage flexibility, imagination, openness to novelty, and finally, creativity, as tools to build resilience towards navigating life, complexity, uncertainty, stress, struggle, or discomfort. Indeed, philosophers and psychologists (e.g., Thomson, 2018) suggest that the presence of negative psychological states, such as anxiety and depression, may enhance creativity. In line with this, Attanasi et al. (2021b) and Mercier et al. (2021) report that COVID-19 lockdown, despite the negative outcomes that came out of it in terms of addictive behaviors (Alifano et al., 2020), may have fostered creativity due to stress, boredom, uncertainty and solitude.

Therefore, while conceptually creativity is clearly embedded in resilience interventions, we argue that significant progress can be further done by including experimental measures of creativity. By quantifying creativity levels before and after resilience interventions, educators and researchers can evaluate the efficacy of resilience programs in fostering not only emotional well-being but also cognitive flexibility and innovation. With this evidence, resilience interventions can be integrated easier in educational programs where the need for more resilient students is high due to various global challenges (e.g., insecure labor markets, systems vulnerables to economic, social and political shocks, etc.).

A brief review of creativity experiments - tasks & assessment

The tradition of studies on creativity through experimental tasks can be traced back to the 1960s with a series of seminal examples: Torrance Tests of Creative Thinking (TTCT; Torrance, 1966), Structure of the Intellect (Meeker, 1969), Thinking Creatively With Sounds and Words (Torrance et al., 1973), Khatena-Torrance Creative Perception Inventory (Khatena & Torrance, 1976), Thinking Creatively In Action and Movement (Torrance, 1981), or puzzle games as card game – Target-the-Two (Cohen & Bacdayan, 1994). Table 2 elaborates on the specific instructions for each task proposed by the early studies, underlining the diverse ways to elicit creativity (e.g., verbal, figural, auditory, action, movement, puzzles or improvisation tasks). More recent studies use similar tasks as the original designs by generally asking participants to create something (e.g., a short story, a drawing, a poem, a composition, a collage), to engage in fluency tasks (e.g., unusual uses tasks, instances tasks, consequences tasks) or to solve puzzles (e.g., card games, pattern construction) with basic and straightforward instructions (Baer & McKool, 2014; Silvia et al., 2008; Charness & Grieco, 2023; Attanasi et al., 2023; Ariely et al., 2009). Some examples of these more recent experimental tasks are also presented in Table 2.

Since the beginning of innovation research, creativity has been debated as both a cognitive and affective competency. It was regarded as evident when expressed but challenging to articulate, grasp, and measure by an external observer. Thus, some early attempts to score creativity quantitatively in terms

Table 2. Creativity tasks with task instructions

Source	Task	Task instructions
Torrance (1966)	The Torrance Tests of Creative Thinking (TTCT)	Verbal tasks such as ask-and-guess (generate as many questions as possible concerning a scenario or a picture), product improvement (suggest creative ways to improve a product), unusual uses (suggest creative uses for mundane objects, for example a brick or a paperclip), consequences of hypothetical events (imagine what would happen after a given event, for example if all people went blind), similarity between common concepts (for example, how meat and milk are similar). Figural tasks such as line/circles activity (using a set of shapes to create unique drawings), incomplete figures (complete a partial drawing), picture construction (create an image from abstract shapes.
Meeker (1969)	Structure of the Intellect (SOI)	Affective tasks (extending a story or showing emotional depth through writing or drawing) and cognitive tasks (symbolic thinking and pattern matching by completing a pattern with novel approaches or word fluency by generating words and ideas related to a theme).
Torrance et al. (1973)	Thinking Creatively with Sounds and Words	Auditory and verbal divergence by listening to sounds and providing creative interpretations, generating stories from given words, phrases, or sounds.
Khatena & Torrance (1976)	Khatena-Torrance Creative Perception Inventory (KTCPI)	A self-assessment tool where subjects would rate themselves terms in terms of independence, curiosity, and imagination. The tools provide insight for problem-solving skills, thinking styles, and openness to new ideas.
Torrance (1981)	Thinking Creatively In Action and Movement (TCAM).	Action and improvisation tasks where participants show creativity through body movement and gestures based on a theme or challenged to mimic things.
Cohen and Bacdayan (1994)	Puzzle game as two-player card game: Target-the-Two (TTT)	A card game of coordination and learning where two players are challenged to reach a target card by exchanging cards from their hands under constraints on possible exchanges. Success implies adapting and recognizing patterns. The game is repeated and players adapt to rules and habits.
Baer & McKool (2014)	"Create something!"	Subjects are given basic instructions and, if necessary, materials and asked to create something like a poem, a short story, or a collage. Creativity is assessed by a jury according to CAT.
Charness and Grico (2023)	Line/circles activity	A fluency task inspired by Torrance' TTCT tasks (1966) where participants are asked to make a creative drawing using any shapes they want, but including triangles, circles, and squares.
Silvia et al. (2008)	Verbal and figural prompts	Divergent thinking (no constraints in terms of a predefined solution or a correct response) is challenged by fluency tasks as Torrance' TTCT tasks (1966),, namely unusual uses for common objects, instances of common objects, consequences of hypothetical events, or similarities between common concepts.
Charness and Grieco (2019, 2023)	Mathematical and logical problems	Mathematical tasks in which participants are instructed to start from a value and reach other values creatively through as many mathematical operations as possible. These conditions are employed to observe creative thinking in a traditionally restrained domain.
Ariely et al. (2009)	Puzzle game	Convergent thinking (has a specific goal, the method of solving is known to the experimenter, and there is only one correct response) is engaged in a task where participants are asked to fit nine metal pieces into a wooden frame.
Attanasi et al. (2023)	TTT with single player	An adaptation of Cohen and Bacdayan's TTT (1994) in which the focus is shifted to routinization and strategy adjustment (no interaction with other players). A routine is encouraged by the design of the game and any disruption from routinization is indicative of creativity and cognitive flexibility.

of uniqueness and statistical rarity (Wallach & Kogan, 1965; Guilford, 1953; Milgram & Milgram, 1976) were overthrown by what is the common practice even nowadays, which is the consensual assessment technique (CAT; Amabile, 1982; Simonton, 1999; Baer & McKool, 2014; Attanasi et al., 2020, 2021a; Charness & Grieco, 2019; Chess & Prissé, 2024). For the CAT assessment of creativity, a jury of experts from creative professions assesses creativity at the aggregate level. A large corpus of studies has shown that the creativity of art, theory, or any other manifestation is consistently assessed with agreement among professionals (Baer & McKool, 2014). Alongside these two directions of assessment, studies also engaged with self-reported creativity and self-perception of creativity in assessing creativity under the presumption that people who perceive themselves as creative are more prone to actually being creative (Barron & Harrington, 1981; Farmer et al., 2003). However, self-perception of creativity revealed unconclusive results in predicting creativity (Attanasi et al., 2019a, 2019b; Charness and Grieco, 2022).

In a recent and original approach, Chessa and Prissé (2024) correlated the CAT assessment grading of creativity with a quantitative approach to classifying participants' artifacts through a binary variable. In this study, participants completed the drawing task proposed by Charness and Grieco (2023) where participants were asked to create a drawing using any shapes, but with the requirement to incorporate three shapes: circles, rectangles, and squares. On the one hand, a jury of professionals assessed the creativity of drawings, and on the other hand, solutions were classified as Fix and NoFix drawings based on how participants approached the task. A drawing was considered Fix when it only included the constraint elements (circles, triangles, and squares), while a NoFix drawing included additional elements as they were not excluded in the instructions. Figure 2 shows the examples between the two categories provided by Chessa and Prissé (2024). The results showed that experts in the CAT procedure assigned higher scores to NoFix than Fix drawings.

Resilience-Creativity Intervention Proposal

We propose a resilience intervention for first-year students to be introduced in their initial meetings with university professors. This intervention aims to equip students with the tools to 'build a resilience' kit and to adjust their expectations to the new institutional setting. Aimed at adressing academic underachievement and reducing student dropout, the intervention also fosters a supportive environment that encourages bonding activities between students and faculty. The intervention integrates structured, pen-and-paper activities that are straightforward to implement, while facilitating the development of resilience and creativity.

The first phase of the intervention involves a resilience-building exercise. Students will receive clear instructions for completing tasks based on CBT as they are straighforward to write on paper and do not require specialized training or curricula such as other interventions (e.g., mindfulness interventions). Specifically, students will be guided for narrative perspective-shifting and resilience journaling tasks, which are adapted to reflect the challenges and opportunities of campus life and academic activities. They will have to complete the "Creative Friend Card", "Two-Act Problem", "Team Choose-Your-Own-Adventure", "Narrative Multiple Choice", and "Create my Future" with instructions outlined in Table 1. Additionally, students will engage with resilience journaling in the "Attention" and the "Mastery" versions, also detailed in Table 1. Group debriefings moderated by educators, alongside written reflections, will provide an opportunity to analyze the typologies of student responses and facilitate discussion.

The second phase transitions to a creativity exercise, incorporating an adapted version of the line-and-circle figural task of TTCT (Torrance, 1966) as proposed by Charness and Grieco (2023). This version involves three types of geometric figures – circles, triangles, and squares (Figure 1) – with participants instructed to "Create a drawing using any shapes of your choice, but ensure that you include all of the specified shapes. You have 5 minutes to complete the task."

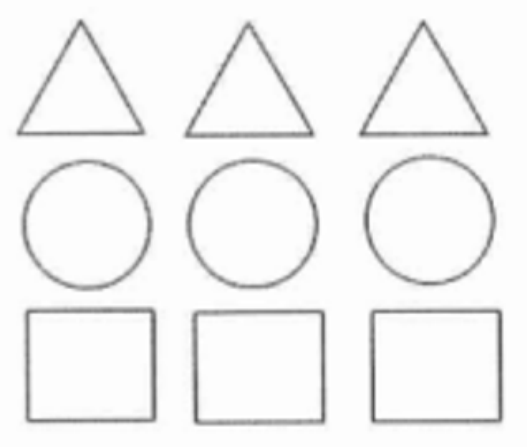

Figure 1. Figural task of TTCT as adapted by Charness and Grieco

Source: Reprinted from "The Evaluation of Creativity: An Experimental Examination of the Consensual Assessment Technique", by M. Chessa and B. Prissé (2024, p. 5).

Creativity will be assessed quantitatively using the methodology developed by Chessa and Prissé (2024), employing the Fix and NoFix categorization system (Figure 2). The more "creative" responses (separately for the Fix and the NoFix drawings) will be explained both verbally and in written form to reinforce understanding. Students will be encouraged to revisit resilience strategies whenever they experience feelings of overwhelm or encounter challenges, with potential feedback moments to be established along their program study. In this context, the written materials, including tasks and debriefing exercises, can serve as comprehensive resilience kits for students.

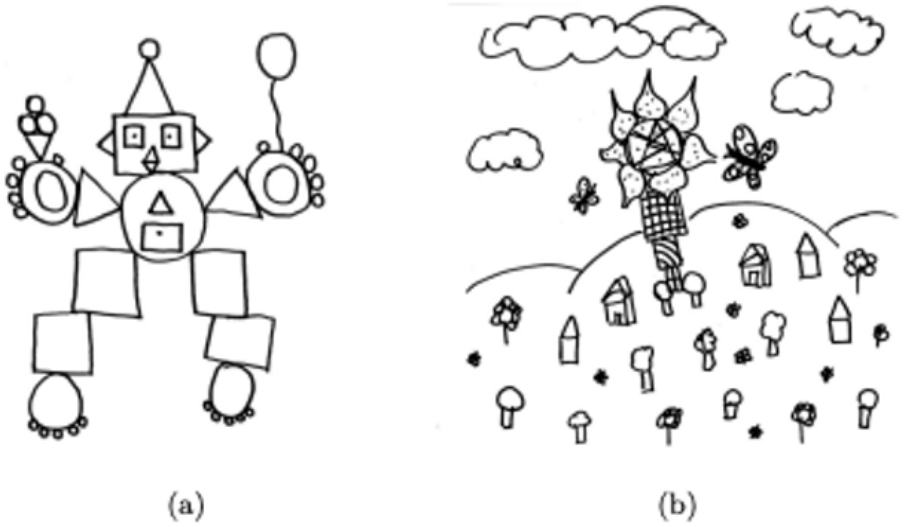

Figure 2. Example of Fix drawing (a) and of NoFix drawing (b)

Source: Reprinted from "The Evaluation of Creativity: An Experimental Examination of the Consensual Assessment Technique", by M. Chessa and B. Prissé (2024, p. 6).

Final remarks and limitations

In conclusion, we believe that resilience interventions for students have the potential to significantly influence creativity outcomes by equipping them with the psychological tools needed to navigate challenges and uncertainty. By fostering adaptability, emotional regulation, and problem-solving skills, resilience training creates a supportive framework for divergent thinking – a key component of creativity. Thus, promoting the resilience training based on the creativity dimension, while it does not claim to be comprehensive in terms of implications, it can be more effective for engaging the younger generations. We emphasize the need to gather more evidence on the relationship between resilience and creativity through further empirical investigation, particularly using robust methodologies. However, we also draw on existing findings that suggest enhancing resilience can foster an environment conducive to creative exploration and innovation. As such, integrating resilience-focused programs within educational settings cannot only improve students' well-being but also empower them to approach complex problems with creativity and confidence, a learning outcome highly positioned on many higher education institutions agendas and strategic plans.

Our proposed approach offers the advantage of being straightforward and versatile, utilizing materials that can be easily adapted for either a two-hour classroom session or independent practice at home, accompanied by written debriefs and reflective exercises. This flexibility enhances its practical applicability in diverse educational contexts, especially considering the posibility to leverage control and treatment groups to collect data on their impact on creativity.

The challenge of not being able to ensure perfect randomness between control and treatment groups is defintely present, which could introduce biases into the study. This limitation aligns with findings from prior resilience intervention research, where achieving rigorous randomization and control-treatment designs has often been cited as a methodological difficulty (Galante et al., 2018).

To ensure robustness, it is essential to also gather baseline data and individual characteristics through pre- and post-tasks surveys. These surveys could include information on demographics, self-assessed creativity levels, and the extent to which students are already engaged in therapeutic or mindfulness practices (Baumgartner & Schneider, 2023; Lohner & Aprea, 2021).

Not last, a notable limitation lies in the method used to assess creativity. Specifically, employing the Fix and NoFix approach shifts the traditionally open-ended divergent thinking drawing task towards the characteristics of a convergent thinking task – one with a predefined goal, a specific method of solving known to the experimenter, and a pre-defined correct answer. This shift could potentially constrain the creativity measurement process and it may need further monitoring (e.g., to check for potential negative effects like short-term frustration or anxiety).

Mitigating these challenges will probably lead to an iterative process of reporting and improvement, a crucial step for generating robust evidence on the relationship between resilience interventions and creativity.

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